UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,235	12/17/2001	Kerry Bernstein	BUR9-2001-0178-US1	3714

29154 7590 06/28/2006

FREDERICK W. GIBB, III
GIBB INTELLECTUAL PROPERTY LAW FIRM, LLC
2568-A RIVA ROAD
SUITE 304
ANNAPOLIS, MD 21401

EXAMINER	
SAXENA, AKASH	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/023,235	BERNSTEIN ET AL.	
	Examiner	Art Unit	
	Akash Saxena	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claim(s) 1-40 has/have been presented for examination based on amendment filed on 11th April 2006.
2. Claim(s) 1-19, 24-25, 30, 33, 36 and 40 are amended.
3. The arguments submitted by the applicant have been fully considered. Claims 1-40 remain rejected and this action is made FINAL. The examiner's response is as follows.

Response to Applicant's Remarks on Claim Interpretation

4. Examiner thanks applicant for clarifying the distinction. As understood by examiner, first bound refers "bounds of target performance parameter variation" in a device for a *single design* due to *single manufacturing process* variation and second bound refers to "bounds of target performance parameter variation" in a device due to *multiple designs*.

Response to Applicant's Remarks on Claim Objection

5. Amendment claims 18 and19 have overcome the claim objections.
6. *Objection to claim 33 is maintained*, as claim 33 does not further limit the claimed limitation of "calculating" primary and secondary parameters, presented in parent claim 30. Amended claim merely rephrases and changes the step of "correlating" to "calculating", which is already disclosed in the claim 30.

Response to Applicant's Remarks on 35 USC § 112¶1st

7. Applicant's arguments relating to the claim 1 are now moot as the claim 1 is amended thereby changing its scope.

Response to Applicant's Remarks on 35 USC § 112¶2nd

8. Regarding Claim 14

Applicant's has argued that product based on the design is not a novel feature of the invention (Pg.16 remarks), however a clear distinction is made in the claim in "designing *said device* and *said product* based on the said target model".

Further, Applicant has pointed to specification [0017], rather confusingly, to clarify *distinction between product and device*. Examiner asserts that specification paragraph [0017] does not even disclose a product. Specification paragraph [0017] merely discloses that device and its conceptual representation a design are driven by application and market niche. At best this paragraph teaches that design (target model) is the conceptual representation of the device.

From applicant's arguments it is further understood that a device is a small component, like a transistor, capacitor, resistor or the like and by analogy the design (target model) is a model of such small devices, which are supposedly much smaller than the product (as argued by applicant). Therefore, the claim disclosing the product (preamble and limitations in the method steps) does not support the implementation for a product. Further, the completion step is missing.

Examiner till now had interpreted the device to be a "physical device" and design (target model) as its conceptual counterpart. Applicant's argument however cloud this distinction by pointing to specification [0034] (remarks Pg. 17). Applicant has stated:

> "[D]evice goals are established and that the *device goals are merely a conceptual objectives* that a device should achieve, and *do not represent a true model* of the device. From these goals target performance parameters 404 are developed."

This appears to switch the definitions of model and device.

Further applicant has stated:

> Target or compact models are a set of equations that are typically embodied in a set of physics-based software subroutines that are part of a circuit network simulation program (See paragraphs [0004] and [0047]).

The paragraphs referred to do not disclose this fact; they merely refer to hardware embodiment of current invention. Further, relevance of this section is unclear.

Examiner maintains the rejection for claim 14 in view of the incoherent argument presented by the applicant. Further, Claim 24 also suffers from the same deficiency as claim 14 and may be rejected likewise.

9. Regarding Claim 19

Examiner withdraws the rejection for this claim in view of amendment to this claim.

10. Regarding Claim 36 and 40

Applicant has cited specification paragraph [0049]. This paragraph does not disclose what applicant is arguing. Specification paragraph [0047] discloses support for applicant's argued limitation. The language is "computer readable medium" is not present in the specification. An "information handling system connected to data processing network" is also present in the same paragraph, therefore a clear mapping from the specification to claim is required. If generically mapped, this may cause concerns under 35 USC 101 relating to claiming energy based transmission medium for transporting information over network.

Examiner maintains the rejection for claims 36-40.

Response to Applicant's Remarks on 35 USC § 101

11. Regarding Claim 1, 36-40

Claims 1,36 and 40 are now modified therefore the arguments are now moot. However, specification cited paragraphs [0004][0047][0049] do not map to the argued points. Please see new 35 USC 101 rejections for these claims.

Response to Applicant's Remarks for 35 U.S.C. § 103

12. Applicant has essentially argued that geometric programming does not provide for ranges/bounds and only defines optimal value (Remarks: Pg. 21 and 22). Examiner respectfully disagrees as HE'277 specifically teaches through example, where open loop gain is desired target performance parameter and needs to be 80 dB, but since the variations caused either by process or design cannot give one optimal value (80 dB) a bound is set (both one sided open – ≥80 dB or closed 80 dB < open loop gain < 85 dB) (HE'277: Col.21 Lines 19-27). Further, HE'277 desires an optimal design not optimal performance as such idealistic goals are seldom met (see cited portion HE'277 in previous sentence). Further, the allegation that geometric programming cannot handle ranges, is incorrect, as HE'277 clearly teaches ranges for parameters (HE'277: Col.21 Lines 27-53).

Further on Pg. 22 in applicant's remarks:

> Thus, these *ranges refer to the variations in the performance parameter of the performance attribute of the device once it is manufactured*, whether the variations are the result of manufacturing variations or actual design variations. *Neither of these bounded ranges refer to the different processing parameters for the various different processes that are used to manufacture the device.*

KR'527 teaches variation in ranges in performance parameter of the performance attribute of the device one it is manufactured (KR'527: Fig.3). Secondly, the ranges

disclosed are both input and output target performance parameter ranges (KR'527: Fig 6a-6c). The teachings being argued are clearly taught by the KR'527 reference, therefore rejection for independent claims 1, 9, 4, 19, 24, 36 and 40 is maintained. Arguments are found to be unpersuasive.

Regarding Claim 19

Further on Pg. 23 applicant argues for claim 19:

> Specifically, the cited portions of KR'527 teach a method in which a simulator is run on *semiconductors having primary attributes* in order to determine curves for secondary attributes and, thereby, *to obtain worst-case curves for the secondary attributes*. Parameters are then extracted from the worst-case curves in order to determine accurate worst-case semiconductor designs. Contrarily, the present invention determines the *primary parameters associated with a particular feature to be modified in a design* and *then determines which secondary parameters will be affected by these primary parameters*, Then, design choices related to the modification and, particularly, related lo the primary and secondary parameters are balanced to achieve some goal, yet still maintaining the target performance parameter within the established ranges (see paragraph (0044)).

First, applicant is arguing limitations are not present in the claim, particularly, method or source of determining the primary parameters and how the secondary parameters are determined from the primary parameters. Further, applicant has provided no support from the specification how the secondary parameters are calculated from the primary parameters (Specification paragraph [0044] does not teach this). This paragraph does not even disclose a primary parameter.

Further, there is no distinction presented in generating the secondary parameter – both the invention ((Specification paragraph [0044]) and KR'527's teaching show using Monte Carlo simulation to derive the secondary parameter (KR'527: Fig.6b – Element 690). Hence applicant's arguments are not persuasive and claims 19-22 remain rejected.

Regarding Claim 23

On Pg. 24 applicant has presented the argument for claim 23 which is very similar to one presented earlier for claim 1, pointing out lack of bounding capability by geometric programming. Please see response above for this claim.

On Pg. 25 applicant concludes by arguing the following:

> Thus, the performance specification in HE'277 is not defined in terms of a set of design distributions to allow for varying designs *(HE'277: Col.6 Lines 25-32)* or varying processes for a single design *(HE'277: Col.20; Lines 6-27),* but rather an optimal value to be applied globally *(HE'277 Col.21).*

Examiner respectfully disagrees, please see the cited section within the argument above for the teachings.

Applicant further states:

> Furthermore, HE'277 does not address altering different features of the design, nor does it address altering different features of the design and then determining whether the altered design is within the set of design distributions.

HE'277 reference is not used for this teaching. KR'527 teaches modifications to design wherein modification comprises modifying a particular feature and adding a particular feature of the design (KR'527: Col.6 Lines 34-59). KR'527 teaches balancing choices (KR'527: Col.2 Lines 20-24, Col.4 Lines 30-34) related to modification and particularly to primary and secondary parameters (KR'527: Fig.6a-b-c; Col.13 Lines 10-23 – I/V curve from L, T, N parameters; element 680-615-618) so that target performance parameters will remain within first bound range and second bound range (KR'527: Abstract: Lines 19-27; Col.8 Lines 50-63).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the

rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 1-8, 36-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding Claims 1-8

Claim 1 recites "A simulator", which does not fall in any of the four statutory categories. MPEP 2106 states

> Office personnel should begin claim analysis by identifying and evaluating each claim limitation. For processes, the claim limitations will define steps or acts to be performed. For products, the claim limitations will define discrete physical structures or materials. Product claims are claims that are directed to either machines, manufactures or compositions of matter. The discrete physical structures or materials may be comprised of hardware or a combination of hardware and software.

Further, a simulator merely having a computer model of an integrated circuit, does not performs any function, thereby does not claim a method or process. No discrete physical structure or materials are recited hence that precludes other machines, manufactures or compositions of matter categories.

Further, claim 1 as recited is not tangibly embodied and does not present a concrete result. An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, **tangible**, and useful result.

Examiner is not sure how a simulator merely having a model falls under any statutory category.

Claims 2-8 are rejected based on their dependency on claim 1.

Regarding Claim 36-39

The Examiner submits that product claims 36-39, as written, are merely drawn to nonstatutory descriptive material since the claimed "computer readable medium storing a computer model do not appear to impart any functionality. (i.e. not a computer program product or executable instructions embodied on a computer-readable medium). MPEP 2106 recites the following supporting rational for this reasoning:

> "Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when **employed as a computer component**. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. **Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se.** Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is **recorded on some computer-readable medium** it becomes structurally and **functionally interrelated to the medium** and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."

Secondly, the term "computer medium" is not defined in the specification (See 35 USC 112 2nd rejection). Claims 37-39 are rejected based on their dependency on claim 36.

Regarding Claim 40

The Examiner submits that product claim 40, as written, is merely drawn to nonstatutory descriptive material since the claimed "computer readable medium storing a design generated utilizing a computer model" where the computer medium storing the design" do not appear to impart any functionality and is functionally non-descriptive material. This claim is rejected with the similar rationale cited from MPEP as claim 36.

New Claim Rejections based on amendment - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claim 36-40 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 36-40

Claim 36 recites "a set of subroutines created using a target performance parameter for said performance attribute". It is unclear what functional step the subroutines are performing. It seems like generating a program code for some min-max value of an attribute, which does not lend any functionality to the program itself.

Claim 40 suffers from the same deficiency.

Claims 37-39 are rejected based on their dependency on claim 36.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. **Claims 1-27 & 30-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6269277 issued to Hershenson et al (HE'277hereafter), in view of U.S. Patent No. 5,966,527 Krivokapic et al (KR'527 hereafter).**

Regarding Claim 1

HE'277 teaches a computer model of a device (HE'277: Col.4 Lines 61-67); a performance parameter (HE'277: Col.3 Line 67 – Col.4 Line 5); performance parameter includes a first bounded range and a second bounded range as inequality constraints (HE'277: Col.4 Lines 5-26); the second bounded *range comprises performance parameter variations between multiple designs for said device as various device topologies (Col.3 Lines 62-67, Col.5 Lines 40-46, 50-67, Col.6 Lines 1-2). HE'277 teaches explicitly bounded range (HE'277: Col.21 Lines 19-26, 44-45) and a single manufacturing process based on single design for said device (HE'277: Col.20 Lines 7-13).*

HE'277 does not teach explicitly *first bounded range comprising performance parameter variations within a single manufacturing process*, although HE'277 discloses generation of appropriate device model based on the technology, process performance parameters.

KR'527 teaches a semiconductor process simulator (KR'527: Fig.6a Element 620) and process parameters for individual processes (KR'527: Fig.6a Elements 602a-e) are sampled in and or simulated from the Monte Carlo Engine (KR'527: Fig.6b Elements 690, 693-695, 620). Range bounds are also provided (Abstract: Lines 19-27; Col.8 Lines 50-63).

It would have been obvious to one (e.g. a designer) of ordinary skill in the art at the time the invention was made to apply the teachings of KR'527 to HE'277. The motivation to combine would have been that HE'277 and KR'527 are analogous art modeling the device and process of semiconductor manufacturing processes (KR'527: Abstract; HE'277: Abstract), where the simulation is controlled by the multiple attributes/parameters/constraints (HE'277: Summary) inputted into the device & process simulator (KR'527: Fig4, 5a-b).

Regarding Claim 2

HE'277 teaches that *multiple* designs are directed to variations of a single *design* (Col.5 Lines 63-67).

Regarding Claim 3

KR'527 teaches that performance parameter is the same for a *target* model of said device and a final hardware design of said device (KR'527: Fig.6a, Fig.3) as the (performance) parameters are used for manufacturing and modeling. KR'527 teaches in interaction between the actual manufacturing and model simulation (KR'527: Col.9-11).

Regarding Claim 4-7

HE'277 teaches using multiple constraints where the constraints vary as defined in the simulation, further HE'277 teaches performing tradeoff optimization between various constraints graphically displayed as curves (HE'277: Col.6 Lines 3-24). KR'527 also teaches statistical Monte Carlo based inputs (as ranges) & range correction (KR'527: Fig.6b, Col.12 Lines 8-50). Plurality of performance points are

selected as various input parameter values from statistical distributions mentioned above.

Regarding Claim 8

HE'277 teaches using geometric programming with its advantageous ability to solve thousands of constraints (HE'277: Col.5 Lines 6-35). Further, HE'277 teaches these constraints can be displayed as tradeoff (implying at least two constraints with plurality of evaluated results) in form of curve representing *target* performance parameters with two-dimensional range of plurality of performance points (HE'277: Col.6 Lines 3-24; Also see KR'527: Col.12 Line 63-Col.13 Line 23).

Regarding Claim 9

Method claim 9 discloses similar limitations as claim 1 and is rejected for the same reasons as claim 1.

Regarding Claim 10

Method claim 10 discloses similar limitations as claim 2 and is rejected for the same reasons as claim 2.

Regarding Claim 11

Method claim 11 discloses similar limitations as claim 3 and is rejected for the same reasons as claim 3.

Regarding Claim 12

Method claim 12 discloses similar limitations as claim 4 and is rejected for the same reasons as claim 4.

Regarding Claim 13

Method claim 13 discloses similar limitations as claim 6 and is rejected for the same reasons as claim 6.

Regarding Claim 14 & 15

Method claims 14 & 15 disclose similar limitations as claim 1 and are rejected for the same reasons as claim 1. Limitation disclosed as "design goals" is further disclosed as "performance parameter". HE'277 teaches producing a target model (HE'277: Col.4 Lines 61-67). Further, KR'527 teaches developing a device and product based on the target model (KR'527: Fig.6a, Col.9-11 Section III). *KR'527 teaches target performance comprises plurality of performance points as points in the V/I curves (KR'527: Fig. 6c).*

Regarding Claim 16

Method claim 16 discloses similar limitations as claim 2 and is rejected for the same reasons as claim 2.

Regarding Claim 17

Method claim 17 discloses similar limitations as claim 3 and is rejected for the same reasons as claim 3.

Regarding Claim 18

Method claim 18 discloses similar limitations as claim 6 and is rejected for the same reasons as claim 6.

Regarding Claim 19

Method claim 19 discloses similar limitations as claim 1 and is rejected for the same reasons as claim 1. Proposed feature is understood as performance parameter having first bound (primary parameter) & second bound (secondary parameter). KR'527 teaches determining secondary parameters from said primary parameters (KR'527: Fig.6a-b-c; Col.13 Lines 10-23 – I/V curve from L, T, N parameters) where the primary parameters are inputted into process simulator and secondary parameters are derived from primary parameters (element 680-615-618) and inputted into device simulator (Element 640). *KR'527 teaches developing a design for the device based on the target model (in simulator) (KR'527: Fig. 6a). KR'527 further teaches modifications to design wherein modification comprises modifying a particular feature and adding a particular feature of the design (KR'527: Col.6 Lines 34-59). KR'527 teaches balancing choices (KR'527: Col.2 Lines 20-24, Col.4 Lines 30-34) related to modification and particularly to primary and secondary parameters (KR'527: Fig.6a-b-c; Col.13 Lines 10-23 – I/V curve from L, T, N parameters; element 680-615-618) so that target performance parameters will remain within first bound range and second bound range (KR'527: Abstract: Lines 19-27; Col.8 Lines 50-63).*

Regarding Claim 20

KR'527 teaches correlating secondary parameters to at least one further secondary parameter (Col.12 Lines 8-62; Fig.6a-c & 7 a-c).

Regarding Claim 21

KR'527 teaches verifying that all primary and secondary parameters are within allowable limits (Col.13 Lines 24-62).

Regarding Claim 22

HE'277 teaches specifying parameters as first order and second order (HE'277: Col.11 Line 59-Col.12 Line 15).

Regarding Claim 23

Method claim 23 discloses similar limitations as claim 1 and is rejected for the same reasons as claim 1. HE'277 teaches determining a set of design distributions that are within a given set of performance targets for a plurality of parameters; altering different features of design; and determining whether altered design is within said set of design distributions (HE'277: Col.5 Line 63-Col.6 Line 24).

Regarding Claim 24

Method claim 24 discloses similar limitations as claim 14 and is rejected for the same reasons as claim 14. In addition claim 24 discloses the "target performance parameter ranges" which HE'277 teaches (HE'277: Col.3 Line 67 – Col.4 Line 40; esp. lines 15-20).

Regarding Claim 25

Method claim 25 discloses similar limitations as claim 6 and is rejected for the same reasons as claim 6.

Regarding Claim 26

Method claim 26 discloses similar limitations as claim 4 and is rejected for the same reasons as claim 4.

Regarding Claim 27

KR'527 teaches the step of accepting altered device design further comprises the steps of carrying out experiments on test chips (KR'527: Fig.3, actual to simulated data comparison & guard band generation Col.13 Lines 32-62).

Regarding Claim 30 & 33

KR'527 teaches calculating a primary parameter from a physical device feature as L, T and N values (KR'527: Col.11 at least in Lines 19-27); correlating a secondary parameter from said primary parameter as associating resulting I/V curve with the L, T, N values (KR'527: Col.13 Lines 10-23); *calculating secondary parameter based on the primary parameters based on predetermined primary to secondary correlation I/V curve based on L, T, and N value equation (KR'527: Col.13 Lines 10-23; Fig. 6c; HE'277; Equation 16)*; and comparing said secondary parameter to said target performance parameter (KR'527: Col.13 Lines 24-37).

Regarding Claim 31

KR'527 teaches correlating other secondary parameters from correlations to said secondary parameters as correlating the V/I curve to the various channel length and attributes (short, short long etc) (KR'527: Fig 5a, Element 500).

Regarding Claim 32

KR'527 teaches primary parameter is directly related to physical device feature as related to channel length, doping, gate oxide thickness (KR'527: Col.11 at least in Lines 19-27 & Table C).

Regarding Claim 33

KR'527 teaches correlating primary to secondary parameters (KR'527: Fig 5a, Element 500). Secondary parameters could be derived parameters like "beta" whose derivation using equation is well known in the art.

Regarding Claim 34

Method claim 34 discloses similar limitations as claim 3 and is rejected for the same reasons as claim 3.

Regarding Claim 35

Method claim 35 discloses similar limitations as claim 6 and is rejected for the same reasons as claim 6.

Regarding Claim 36

Product claim 36 discloses similar limitations as claim 1 and is rejected for the same reasons as claim 1. HE'277 teaches a computer program product as alternate embodiment (HE'277: Col.22 Lines 1-21).

Regarding Claim 37

Product claim 37 discloses similar limitations as claim 4 and is rejected for the same reasons as claim 4.

Regarding Claim 38

Method claim 38 discloses similar limitations as claim 7 and is rejected for the same reasons as claim 7.

Regarding Claim 39

Method claim 39 discloses similar limitations as claim 8 and is rejected for the same reasons as claim 8.

Regarding Claim 40

Method claim 40 discloses similar limitations as claim 1 and is rejected for the same reasons as claim 1. HE'277 teaches a computer program product as alternate embodiment (HE'277: Col.22 Lines 1-21).

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akash Saxena whose telephone number is (571) 272-8351. The examiner can normally be reached on 9:30 - 6:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini S. Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Akash Saxena
Patent Examiner, GAU 2128
(571) 272-8351
Friday, June 26, 2006

Kamini S. Shah
Supervisory Patent Examiner, GAU 2128
Structural Design, Modeling, Simulation and Emulation

PRIMARY EXAMINER
AU 2128